CLAIMS:

1. A method of inverse transform of bit-plane-oriented discrete cosine transform transformed data representing a frame of video data comprising:

providing a lookup table comprising a matrix of numerical contributions based on a location of a bit-plane cell within any bit-plane of a bit-plane set, said numerical contributions independent of bit-plane order;

selecting said numerical contribution from said lookup table for each bit-plane cell having a discrete cosine transform coefficient of 1 in each bit-plane; and

shifting a binary representation of each selected numerical contribution by a number of bit-positions equal to a bit-plane number of the bit-plane of which a particular bit-plane cell is a member.

2. The method of claim 1, wherein said lookup table is pre-calculated.

3. The method of claim 1, wherein said bit-planes numbers decrease from a most significant bit-plane to a least significant bit-plane.

4. The method of claim 1, wherein said shifting said binary representation shifts from a lower to a higher significant bit position.

5. The method of claim 1 further including adding over all bit-planes said actual contributions of each corresponding bit-plane cell of each bit-plane for each said coefficient to calculate said matrix of pixel values

6. The method of claim 5, further including assigning a mathematical positive or a mathematical negative to the said contributions.

7. The method of claim 1, wherein said frame of enhancement video data is decoded from an MPEG-4 FGS enhanced data stream

8. A bit-plane inverse discrete cosine transform processor comprising:

a lookup table comprising a matrix of numerical contributions based on a location of a bit-plane cell within any bit-plane of a bit plane-set, said numerical contributions independent of bit-plane order;

means for selecting said numerical contribution from said lookup table for each bit-plane cell having a discrete cosine transform coefficient of 1 in each bit-plane; and

means for shifting a binary representation of each selected numerical contribution by a number of bit-positions equal to a bit-plane number of the bit-plane of which a particular bit-plane cell is a member.

9. The processor of claim 8, wherein said lookup table is pre-calculated.

10. The processor of claim 8, wherein said bit-planes numbers decrease from a most significant bit-plane to a least significant bit-plane.

11. The processor of claim 8, wherein said means for shifting said binary representation shifts from a lower to a higher significant bit position.

12. The processor of claim 8, further including means for adding over all bit-planes said actual contributions of each corresponding bit-plane cell of each bit-plane to obtain a matrix of pixel values.

13. The processor of claim 11, wherein said means for adding further comprises means for assigning a mathematical positive or a mathematical negative to said contributions.

14. A fine granular scalability decoder comprising:

an enhancement layer decoder comprising:

a fine granular scalability bit-plane variable length decoder adapted to receive and decode a fine granular scalability enhancement stream;

a bit-plane inverse discrete cosine transform processor coupled to an output of said fine granular scalability bit-planer variable length decoder and adapted to create enhancement frame data; and

an enhanced video reconstructor coupled to a frame buffer and adapted to combine said enhancement frame data with a base video signal to produce an enhanced video signal; and

a base layer decoder adapted to decode a base layer stream into said base video signal.

15. The decoder of claim 14, wherein said bit-plane inverse discrete cosine transform processor comprises:

a lookup table comprising a matrix of numerical contributions based on a location of a bit-plane cell within said any bit-plane of a bit-plane set, said numerical contributions independent of bit-plane order;

means for selecting a numerical contribution from said lookup table for each bit-plane cell having a discrete cosine transform coefficient of 1 in each bit-plane; and

means for shifting a binary representation of each selected numerical contribution by a number of bit-positions equal to a bit-plane number of the bit-plane of which a particular bit-plane cell is a member.

16. The decoder of claim 15, wherein said lookup table is pre-calculated.

17. The decoder of claim 15, wherein said bit-planes numbers decrease from a most significant bit-plane to a least significant bit-plane.

18. The decoder of claim 15, wherein said means for shifting said binary representation shifts from a lower to a higher significant bit position.

19. The decoder of claim 15, further including means for adding over all bit-planes said actual contributions of each corresponding bit-plane cell of each bit-plane to obtain a matrix of pixel values.

20. The decoder of claim 19, wherein said means for adding further comprises means for assigning a mathematical positive or a mathematical negative to the said contributions.

21. The decoder of claim 15, wherein said fine granular scalability bit-plane variable length decoder generates said location of said bit-plane cell within a particular bit-plane.

22. The decoder of claim 15, wherein said fine granular scalability bit-plane variable length decoder generates said bit-plane number of a particular bit-plane.

23. The decoder of claim 15, wherein said fine granular scalability bit-plane variable length decoder generates said mathematical positive or said mathematical negative.

24. The decoder of claim 14, wherein said base layer decoder includes an inverse discrete transform processor.

25. The decoder of claim 14, wherein said an enhancement layer decoder generates a zero value for every bit-plane cell of a missing bit-plane of said bit-plane set in said fine granular scalability enhancement stream.